

Pengaruh Waktu Milling LiOH Terhadap Karakteristik Gemuk Lumas Bio Untuk Aplikasi Temperatur Tinggi = The Milling Time's Effect of LiOH Powder to the Bio Grease Characteristics for High Temperature Applications

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Abstrak

[ABSTRAK

Penggunaan litium hidroksida (LiOH) sebagai bahan thickener dalam proses pembuatan gemuk lumas sangat umum digunakan. Gemuk sabun litium merupakan gemuk sabun sederhana yang banyak digunakan untuk aplikasi tujuan umum di mana suhu tidak melebihi 130 °C dengan nilai dropping point biasanya 180°C. Dalam proses pembuatan sabun litium, LiOH tidak dapat larut dalam minyak, sehingga dibutuhkan air untuk melarutkannya. Sementara banyaknya air yang digunakan dalam pencampuran LiOH dapat berpengaruh terhadap ketidakstabilan gemuk lumas. Oleh sebab itu LiOH perlu dihaluskan untuk dapat menghasilkan suspensi LiOH dalam air yang jumlahnya terbatas. Penghalusan LiOH dilakukan dalam variasi waktu milling 0 jam, 1 jam, 2 jam, 3 jam, 5 jam dan 10 jam yang menghasilkan gemuk lumas dengan karakteristik yang berbeda-beda. Dari hasil-hasil percobaan menunjukkan bahwa dengan waktu milling selama 3 jam, diperoleh nilai karakteristik gemuk lumas yang optimum. Dengan perlakuan milling terhadap serbuk LiOH selama tiga jam, gemuk lumas bio mampu diaplikasikan pada suhu tinggi. Pada kondisi ini, gemuk lumas tersebut mempunyai dropping point sebesar 222°C dan scar diameter 0,39 mm.

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ABSTRACT

Lithium hydroxide (LiOH) powder is commonly used as a raw material in the manufacturing process of grease thickener. Lithium soap greases are simple soap greases which are widely used for general purpose applications, where the temperature does not exceed 130 °C and dropping point values of approximately 180 °C. However, during the manufacture process of lithium soap, LiOH is not quite soluble in oil, consequently some water is required to dissolve this compound. On the other hand, the amount of water used in dissolving LiOH may affect the instability of greases. Milling of LiOH, therefore, is needed to produce a refined suspension of LiOH in limited water. LiOH treatments were conducted with a variable milling time of 0, 1 hour, 2 hours, 3 hours, 5 hours and 10 hours. These treatments produce greases with different characteristics. Based on the experimental results, the optimum characteristic of greases is obtained at the milling time of 3 hours. By using LiOH treated for 3 hours milling, bio greases can be applied for high temperature operation. In such circumstances, the bio greases have dropping point and scar diameter of 222°C and 0.39 mm respectively; Lithium hydroxide (LiOH) powder is commonly used as a raw material in the manufacturing process of grease thickener. Lithium soap greases are simple soap greases which are widely used for general purpose applications, where the temperature does not exceed 130 °C and dropping point values of approximately 180 °C. However, during the manufacture process of lithium soap, LiOH is not quite soluble in oil, consequently some water is required to dissolve this compound. On the other hand, the amount of water used in dissolving LiOH may affect the instability of greases. Milling of LiOH, therefore, is needed to produce a refined suspension of LiOH in limited water. LiOH treatments were conducted with a variable

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